CAL SMACNA

To: Mr. Bill Pennington, Project Manager
Energy Efficiency and Demand Analysis Division
California Energy Commission
1516 Ninth St. MS-26
Sacramento, CA 95814

Subject: 2005 California Building Energy Efficiency Standards
July 18, 2002 Workshop Comments

California Association Sheet Metal And Air Conditioning Contractors National Association

Dear Mr. Pennington,

On behalf of the membership of the California Association of Sheet Metal and Air Conditioning Contractors, National Association (CAL-SMACNA), I am pleased to provide the following comments regarding some of the proposals and presentations made at the July 18, 2002 workshop regarding the 2005 California Building Energy Efficiency Standards.

All of the following comments relate to *Duct Leakage Pressure Testing* as it relates to both the Residential and Light Commercial proposed code changes as contained within the a) "*Duct Sealing Requirement upon HVAC or Duct System Replacement Report 7-2-02*" and/or b) "*Nonresidential Duct Sealing & Insulation Report 7-2-02*".

1. New Construction

1.1. We **SUPPORT** the addition of duct leak pressure testing and additional insulation requirements on light commercial projects as these measures will further make California energy efficient and help solve our state's energy and economic issues.

2. Existing Buildings

2.1. We **OPPOSE** the proposed plans for both the residential and light commercial building change proposals as currently submitted.

2.2. We have significant reservations regarding the implementation method for existing buildings. Linking the additional duct testing and sealing requirements to unit replacements (without providing sufficient off-setting cost incentives) may have severe unintentional negative consequences.

2.2.1. Building owners will be less inclined to replace the older (less efficient) units.

2.2.2. Building owners will be inclined to use a contractor who is willing to perform the work without a permit.

3. Duct Leakage Test Procedures

3.1. While the proposals and presentations are correct in indicating that the "Pitot Tube Traverse vs. Distribution Summation" method is commonly used to determine duct leakage in commercial applications by test & balance personnel, the reasoning for this was apparently not known so the wrong conclusions were made about the commercial industry's procedures and capabilities.

3.2. The reason the pitot traverse is the common commercial leak testing method is as follows.

3.2.1. Pitot traversing the main ducts has been a long-standing practice (especially before accurate airflow measurement devices existed for the distribution points) for accurately determining the fan's total airflow in an operational condition.

3.2.2. Pitot traverses are still encouraged, where sufficiently straight main ducts are present, even with the advancement in distribution measurement instrumentation due to the presence of duct leakage.

3.2.3. Since the air distribution also needs to be tested and adjusted to obtain a balanced system, the least expensive way of determining duct leakage is to mathematically compare the two test results. This is why the pitot traverse is the common testing & balancing scope duct leakage test method currently in use.

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3.3. Not indicated in the proposals is that a significant amount of duct leak pressurization testing HAS by been performed in the commercial and industrial HVAC markets, but this has typically been performed on medium and high pressure ductwork.

3.4. The common test procedure used in the commercial markets is SMACNA's *Duct Leakage Test Manual*. This manual includes all of the test procedures and also details a system for specifying and determining allowable leakage in a more sophisticated and appropriate manner for commercial applications (based on square feet of surface area rather than a percentage of total flow in order to account for systems of varying size and length). This is the manual referenced in ASHRAE's Energy Conservation Standard 90.1. A copy of the manual has been enclosed for your reference.

4. Quantity of Testing Personnel

4.1. Some individuals reviewing the proposals & presentations may become mislead between the comparison of number of personnel (CHEERS) verses the number of companies (NEBB & AABC).

4.2. There are approximately 140 test & balance technicians in the San Francisco Bay Area Sheet Metal Workers (SMW) Union working for union AABC, NEBB & Installing Contractors, all of which are familiar with duct leakage pressure testing.

4.3. In my estimation, there must be *at least* an equal amount of active union SMW installation personnel who have also received training and conducted duct leakage pressure testing. This would indicate at least 280 persons in the Bay Area experienced in duct leakage pressure testing.

4.4. Since Bay Area SMACNA represents approximately 50% of the labor hours of CAL-SMACNA, this would indicate that at least 560 union Sheet Metal Workers in the State of California are already experienced with duct leakage pressure testing (and the associated contractors they work for own the testing equipment) in addition to the 240 CHEERS certified residential HERS Raters.

4.5. Even if it is determined that there is insufficient documentation on file regarding their specific training and skills proficiency in duct leakage pressure testing, I am confident that our industry could easily remedy this through our numerous Joint Apprenticeship Training Centers located throughout California.

5. Minor Errors

5.1. Page-4 of the *Nonresidential Duct Sealing and Insulation* proposal incorrectly identifies the duct leakage pressure testing equipment as being commonly referred to as "duct blasters" when in fact this is the *trademark or brand name* for one of the equipment manufacturers specializing in the residential market. The correct commonly referred to name is "duct tester" as has been used by companies who have been supplying the commercial-industrial markets long before a residential market existed for this type of test equipment.

5.2. Page-5 of the *Nonresidential Duct Sealing and Insulation* proposal incorrectly identifies the AABC trade association as the "*Association of Air Balance Contractors*". The organization is actually known as the "*Associated Air Balance Council*".

Both myself and CAL-SMACNA wish to be a resource for the commission as these matters move forward. If you have any questions or comments regarding this letter, or if there is anything else we can do to assist at this time, please contact myself at 408-928-3000 at your earliest convenience.

Sincerely,

William R. Edwards
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Board Member; Bay Area SMACNA
Board Member; California SMACNA
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CC: Gary Schwenk; Executive Vice President, Bay Area SMACNA
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Enclosure: SMACNA's *Duct Leakage Test Manual*